

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

ORDER NO. 98-099

SITE CLEANUP REQUIREMENTS FOR:

MILLIS CORPORATION, MILLIS HYBRID MICROCIRCUITS CORPORATION, ECA CORPORATION, MILLIS WEST CORPORATION, ENGELHARD PRECISION MICROWAVE CIRCUITS WEST CORPORATION (EPMCWC), ENGELHARD CORPORATION, SILICON MATERIAL INC., HY-PAC INC., GARD-MORE CIRCUITS, MOUNTAIN VIEW-LOS ALTOS UNION HIGH SCHOOL DISTRICT, ALVIN LAWRENCE SILVER AND RUTH ELEANOR SILVER, RICHARD B. WELLS AND GINGER WELLS, JEROME GILMORE AND GEORGIA GILMORE, AND A PARTNERSHIP OF PAUL ZEBB, CHARLES BEDOLLA, HENRY YAMATE AND TAD SEKIGAHAMA

FOR THE PROPERTY LOCATED AT:
333 (341) MOFFETT BOULEVARD
MOUNTAIN VIEW, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

SITE LOCATION AND DESCRIPTION

1. The Site of approximately 1.3 acres, located at 333 (formerly 341) Moffett Boulevard in Mountain View and presently owned by the Mountain View-Los Altos Union High School District, is occupied by an Adult Education Center consisting of a recently (1990/1991) constructed education building, landscaping, and surfaced parking areas, at the intersection of Moffett Boulevard and Cypress Point Drive, in an area of light industrial and commercial development. Residential areas are nearby. The education building includes a Day Care Center for children of adult students.
2. Prior to the Adult Education Center, the Site was occupied by a two-story (one full first floor level and a partial second story) manufacturing building originally constructed in 1959 and having approximately 10,400 square feet of first floor area. The overall area of the manufacturing building was approximately 13,600 square feet.
3. The Site is known to have soil and groundwater contamination consisting of a number of different volatile organic compounds (VOCs). Other contamination (cyanides, phenols, metals) is suspected. VOC contamination has been found in the shallow "A-Zone" soil and groundwater.

4. The Site is downgradient from and adjacent to a commercially redeveloped property at 327 Moffett Boulevard currently undergoing remediation to remove VOCs from "A-Zone" groundwater. The adjacent property at 327 Moffett Boulevard, used by electronics-industry occupants until about 1984, had previously undergone soil remediation to remove metals and some VOCs from the "A Zone". A manufacturing building formerly occupying the property at 327 Moffett Boulevard was demolished and removed so that the property could be redeveloped commercially as a Mini Mall.
5. Further upgradient from and adjacent to the property at 327 Moffett Boulevard is located an automobile repair facility at 724-730 Central Avenue. Some site investigation work has been done here, and VOCs similar to those found on the downgradient properties have been detected in the "A-Zone" groundwater at this facility.

SITE USE AND HISTORY

6. The subject Site at 333 (341) Moffett Boulevard was used by various entities known to have been associated with the electronics industry since the original manufacturing building was constructed in 1959 and until the end of 1988. The original building was demolished and removed, to make room for new construction. The early Site history is not well recorded; reportedly, this Site and the property at 327 Moffett Boulevard were at one time occupied and operated by the same owners.
7. Some business names associated with the early history of the Site are Rheem Semiconductor Corporation (1959), Teledyne Corporation (1961), Amelco Electronic Equipment (1962), Signetics Company (first period of temporary occupancy 1963-1964), Edex Corporation (1965), Raytheon Learning (1968), Signetics Company (second period of temporary occupancy 1969-1970), Silicon Material, Inc. (1974-1979), Hy-Pac, Inc. and Gard-More Circuits (1979-1982), and CAD IMAR Photographic (reportedly a co-tenant with Hy-Pac/Gard-More during part of Hy-Pac/Gard-More's occupancy). It is not known if any of these companies had owned the Site; all may have occupied the Site as tenants.

Site occupancy by most of the earlier occupants appears to have been of short duration; Silicon Materials and Hy-Pac each occupied the Site for about 5-6 and 3 years, respectively. Information on the operations of the 1961-1981 Site occupants is very sparse for the most part. Some but not all of the companies engaged in manufacturing, and some used varying amounts of chemicals and generated wastes for disposal.

8. Substantial evidence does not exist indicating any operations at the Site prior to 1971 that would have contributed to Site contamination. An aerial photograph taken on August 11, 1971 shows staining on the east side of the building, but the owner(s) and operator(s) of the site between 1970 and 1974 have not yet been identified. An investigation will be performed by Regional Board staff in order to identify the responsible party(ies) during this time period. If additional responsible parties are identified, this Order will be revised for Board consideration to name the additional parties.

9. Silicon Material, Inc. (SMI) operated a business to reclaim silicon wafers used in the electronics industry, and stored and used chemicals including acids, alcohols, hydroxides, acetone, and trichloroethylene (TCE) on-site from approximately 1974 to 1979. Ametek, Inc. purchased the assets of SMI on-or-about February 16, 1979.
10. Hy-Pac, Inc./Gard-More Circuits engaged in manufacturing and fabrication of electronic components, stored and used chemicals on-site and generated wastes for disposal, from 1979 to 1982. Gard-More Circuits, the parent of Hy-Pac, occupied part of the building during Hy-Pac's occupancy and used it for manufacturing and corporate offices.
11. Approximately 1982 the Site was occupied by Millis Hybrid Microcircuits Corporation, a subsidiary of Millis Corporation. Millis Corporation was the Site occupant in 1984, and sold its assets to Engelhard Corporation on February 12, 1985. Engelhard Corporation simultaneously assigned these assets to two wholly-owned subsidiaries, EMA Corporation and ECA Corporation. (While this transaction was officially completed in 1985, the public record contains references to the occupant of the Site in 1983 as "Engelhard/Millis", and/or "Millis-Engelhard").
12. ECA operated at the Site, changed its name to Millis West Corporation and later to Engelhard Precision Microwave Circuits West Corporation (EPMCWC), ceased operations in August 1988 and completed closure activities on December 21, 1988 (all manufacturing ceased in 1988). The Board was not involved in these closure activities.
13. The record reveals that supervisory and/or professional personnel employed at the Site by Millis Hybrid Microcircuits Corp. in 1982-1983 continued as employees through the entire subsequent period of occupant name changes; Engelhard Corporation and its subsidiaries occupied the Site for industrial purposes from at least 1985 through 1988, and perhaps as early as 1983. Throughout the years until the facility closed, the industrial activities were similar, and similar chemicals were used.
14. The property owner from about the beginning of Millis' occupancy until almost the end of 1987 was Richard Wells. At the end of 1987 or very beginning of 1988, the property owner was Al Silver. In or about 1990 Mr. Silver sold the then-vacant property to the Mountain View-Los Altos Union High School District, the current owner.
15. Based on available information, both the former Engelhard (subject) Site and the adjacent former InnerConn site had similar histories and uses by the electronics industry. Occupants at both sites manufactured or fabricated components for the electronics industry from the early 1960's to the 1980's. InnerConn Technologies (ICT) was the last industrial occupant of the 327 Moffett Boulevard property prior to its redevelopment as a Mini-Mall, and ceased operations in 1984; while Engelhard was the last industrial occupant on the adjacent property (subject Site) prior to its redevelopment as an Adult Education Center, and ceased operations in late 1988.

16. There is no verifiable record of underground storage tanks having been used at this Site. Soil and groundwater contamination are believed to have occurred as a result of past use and storage of VOCs (and other materials) and waste-disposal practices.
17. There is evidence of significant staining behind (east side of) the former manufacture building, extending on a northeast-southwest alignment, paralleling the building itself and 20-30 feet from it, on aerial photographs of 1980. Staining along this same alignment is seen on other aerial photographs, both before and after 1980.
18. The Board has determined, from available technical information and data, that contamination has on-site origins. Groundwater and chemical data suggest more than one on-site source and time of VOC contamination.
19. Contaminated groundwater originating on the upgradient property at 327 Moffett Boulevard has migrated onto the Site and has commingled with contamination which is emanating from the Site. The property at 327 Moffett Boulevard is being remediated under Board Order, and two groundwater extraction wells have been installed.

DISCHARGERS NAMED

20. Dischargers named herein are former occupants, including Millis Corporation, Millis Hybrid Microcircuits Corp., ECA Corp., Millis West Corp., Engelhard Precision Microwave Circuits West Corp. (EPMCWC), Engelhard Corp.; Silicon Material, Inc. (SMI); and Hy-Pac Inc. and Gard-More Circuits. Dischargers also include former property owners: Alvin and Ruth Silver, Richard and Ginger Wells, Jerome and Georgia Gilmore, and a Partnership consisting of Paul Zebb, Charles Bedolla, Henry Yamate and Tad Sekigahama; and the current property owner, the Mountain View-Los Altos Union High School District.

Mountain View-Los Altos Union High School District [and Alvin Lawrence Silver and Ruth Eleanor Silver] for the purposes of this Order are considered Secondary Dischargers by the Board since they did not actively cause the discharge and Engelhard Corporation (and its predecessors) who did engage in activities that resulted in the discharges can effectively accomplish the tasks required by this Order. Mountain View-Los Altos Union High School District [and Alvin Lawrence Silver and Ruth Eleanor Silver] will be responsible for compliance with this Order only if the Board or Executive Officer find that other named dischargers have failed to comply with the requirements of this order.

The former industrial occupants discharged wastes that are causing or threaten to cause pollution/contamination of the groundwater and a condition of nuisance. The property owners are or should have been aware of the industrial use of the Site, and the chemicals involved, and have the ability to control the discharges.

21. A copy of this Order has been mailed to each Discharger named herein, at the last known address. If an address is unknown, such as for the partnership of Zebb, Bedolla, Yamate, and Sekigahama, mailing of this Order will be delayed pending acquisition of a mailing address. If information should come to the attention of the Board which shows that others should be named as Dischargers, the Board will consider adding these names to this Order.
22. SMI is named as a Discharger because: A Master Floor Plan for the Site shows that SMI was using "chemicals" and conducting "chemical process(ing)", "wafer cleaning", and "polishing" activities within the building; and had established exterior (enclosed) storage areas adjacent to the building. One such area was identified as "proposed solvent storage", located at the southeast corner (rear) of the building. This area appeared to have a below-ground drain.

SMI stored used liquids in 55-gallon drums which were placed at the rear of the building for pick up and off-site transport and disposal. The pattern of VOC contamination in groundwater shows that the outside area used by SMI for solvent storage was a source area for Site contamination.
23. Hy-Pac and Gard-More Circuits are named as Dischargers because: Hy-Pac and Gard-More operated at the facility from approximately 1979 to 1982, and were required by the City of Mountain View Fire Department (MVFD) in 1981 to relocate approximately 130 chemical-waste drums (many of which were empty 55-gallon drums containing hazardous residues) from the rear of the building to a safe location. On July 9, 1981 a Board Inspector observed 35 barrels of acids and chlorinated solvents behind the building. There were also 14 five-gallon cans of solvent residues and metals. Hy-Pac/Gard-More stored solvent waste drums in the same area used by SMI for solvent storage, which is a source area for Site contamination.
24. Engelhard is named as a Discharger because: Engelhard stored and used a number of chemicals, including acetone, various acids, bases, alcohols, Freon TF, Freon TMC, toluene, trichloroethane (1,1,1-TCA), trichloroethylene (TCE), phenol, and cyanide at the Site. Among the VOCs detected in soil and groundwater at this Site, TCE is the most predominant, and TCA and Freon have also been found at a number of locations. City Fire Department records indicate that Engelhard stored both hazardous materials and hazardous wastes, including drums of mixed solvents, on-site.
25. Engelhard conducted a number of production and related processes which included cleaning basic materials with solvents such as Freon (vapor) and detergents; drying with a mixture of Freon and alcohol (Genesolv DS), or a mixture of Freon and methylene chloride (Gene- solv D M); air baking; vacuum deposition of metals ("sputtering", using argon and nitrogen gases as carriers); applying photoresist in the dry lab; after drying, immersing in solvents (in the wet lab) that would dissolve selected parts of the photoresist.

Material would be subjected to various etching procedures in the wet lab by the use of etch formulations, followed by immersion in a tank containing a phenolic solution. The immersion tanks were segregated into separate areas for oxidizers, organic solvents, and phenols. Another tank contained a cyanide solution for plating and stripping gold. Some fabrication process waste streams and/or rinse waters were discharged to the sanitary sewer by Engelhard.

26. TCE (1991) and 1,1,1-TCA (1996) were found in soil samples from the vicinity of the building sewer connections along Moffett Boulevard. Engelhard collected a groundwater sample downgradient of this area in 1997. The analysis indicated contamination by TCE at 450/440 ug/L and lesser amounts of other VOCs.
27. The MVFD's 1988 annual inspection report indicates that there was evidence of spillage in the chemical storage room (indoor), and that there were bare spots on the floor which showed that the protective epoxy sealant had been breached (or did not exist). The MVFD notified Engelhard to re-seal the floor in the chemical storage room. It was also noted in 1988 that the integrity of the secondary containment for chemical containers including drums had been compromised by the development of large cracks.
28. Engelhard stored wastes, including waste solvents, in drums placed in an outdoor hazardous waste containment area located at the rear of the building, in the Site's interior, for off-site transport and disposal. High amounts of VOCs, specifically TCE, have been found in groundwater samples from cone penetrometer test (CPT) locations and monitoring wells near and downgradient from this containment area. These detections are indications of past spillage and/or leakage of VOCs from nearby source areas, including the containment area.
29. Engelhard disposed of wastes both by shipping drums off-site and discharging rinse waters (waste streams) to the sanitary sewer.
30. Engelhard's progenitors (refer to Findings 11 and 12) are named as Dischargers because the operations and practices of these corporations generally were the same as for Engelhard (EPMCWC).

In 1985 the Site occupant, Millis Corp. (Millis/Engelhard by one notation), had been advised by the MVFD of the necessity to seal the chemical storage room floor with a coating resistant to corrosive materials. (Also see Finding 27.)

REGULATORY STATUS

31. This Site currently is not regulated by Site Cleanup Requirements under a Board Order, although Engelhard has recently performed Site investigations as required by the Executive Officer under California Water Code Section 13267.

SITE HYDROGEOLOGY

32. The Site hydrogeology is believed to be similar to that of the adjacent upgradient site; both sites are underlain by a thick sequence of unconsolidated alluvial material which includes deeper geologic units corresponding to some of the Santa Clara Valley's important water-yielding deposits. Some municipal water is obtained by the City of Mountain View from aquifers 200-700 feet below the ground surface in this general area.

The near-surface shallow alluvial material is composed of sands, gravels, silts and clays, and variable mixtures of combinations of these units. The water-yielding units are permeable sands and gravels, interbedded with less permeable silts and clays, and considered to be potential sources of drinking water supplies.

33. The shallow groundwater appears to flow predominantly to the north and northwest (and, at times, to the northeast), with an estimated average velocity of about 100 feet per year. The local water table normally fluctuates seasonally within a narrow range similar to that seen nearby, with larger fluctuations over periods of several years, in conformance with fluctuations in the regional (basinwide) water table. The current (1996/1997) depth to the water table is about 13-15 feet below ground surface; records from elsewhere in the Santa Clara Basin indicate that during earlier dry periods (within the 1970-1985 time frame) the groundwater level (water table) dropped to 40 feet below ground surface (or perhaps deeper).
34. The Site is in an area of a complex hydrogeological environment which has one common potentiometric surface (water table) that fluctuates vertically primarily in response to precipitation events, and/or lack thereof.

REMEDIAL INVESTIGATION

35. When Engelhard ceased operations in 1988, a building closure plan was developed and followed, but this plan did not address the Site: it did not include provisions for soil borings or collecting groundwater samples for analyses.
36. From a historical perspective, groundwater VOC contamination was detected on the adjacent former InnerConn site at 327 Moffett Boulevard in 1987, three years after InnerConn ceased operations and vacated the site. No site investigations were initiated by InnerConn. Investigations initiated by California First Bank and continued by Union Bank/Union Bank of California (UBOC) found soil contamination (VOCs and metals) and groundwater contamination (VOCs) identified as being associated with above-ground storage of chemicals, materials and wastes, practices of chemicals and materials usage, and practices of waste disposal. This facility contained chemical storage areas, an interior wastewater collection system, and sump(s); no underground tanks are known to have existed at the former InnerConn site.

37. In 1989, as part of an Environmental Site Assessment made for the High School District, four exterior soil borings were made on the subject property. The borings were some distance apart, all were terminated no deeper than 15 feet below ground level, and none reached groundwater. The only VOC detected in a soil sample, which was composited from two samples, both from a depth of 13.5 to 14 feet, from the southern portion of the Site was acetone.

Acetone was detected at 780 ppb, but this was thought to be a laboratory artifact, because none of the discrete soil samples retested for acetone had a detectable concentration. No other VOCs were detected. Two other soil samples from the mid and northern portions of the Site were tested for priority metals; the detected concentrations were considered normal, or background. No samples were collected from beneath or adjacent to the former manufacturing building. (There is an unconfirmed report that two additional exterior borings may have been made for the School District at a later date.)

38. In 1991 and 1992 the Union Bank/Union Bank of California (UBOC) installed five off-site groundwater monitoring wells into the shallow aquifer (not deeper than 45 feet below ground surface) as part of the groundwater remediation effort at 327 Moffett Boulevard. Wells MW-10 and MW-11 were placed on the subject Site, and wells MW-12, -14, and -15 were placed on the other side of Moffett Boulevard.
39. Groundwater contamination was detected and confirmed on the subject Site in 1992, in samples collected from UBOC wells MW-10 and MW-11. The initial (May 1992) groundwater sampling event for well MW-10, located about 50 feet beyond the Site boundary common with the former InnerConn site, showed a TCE concentration of 530 ppb, along with 23 ppb 1,1-DCA, 17 ppb 1,1-DCE, 10 ppb 1,1,1-TCA, 33 ppb cis-1,2-DCE, and 11 ppb Freon-113.

Groundwater from well MW-11, located very close to the downgradient Site boundary, showed TCE at 240 ppb and low concentrations of 1,1-DCA, 1,1-DCE, 1,1,1-TCA, and cis-1,2-DCE. Most of these same VOCs had commonly been detected on the former InnerConn site, but the concentrations of TCE in groundwater samples from wells MW-10 and MW-11 on the subject Site were higher than expected, based on the downgradient locations of these wells.

40. On the other side of Moffett Boulevard opposite the subject Site and former InnerConn site are located two properties on which VOCs were first detected in groundwater samples from monitoring wells installed by Union Bank of California (UBOC) in 1991 and 1992. Sources or activities contributing to VOC contamination are not known to have existed on these neighboring properties. It is suspected that groundwater containing VOC contaminants migrated to the far side of Moffett Boulevard from the vicinity of the subject Site and the former InnerConn site.

Hydrocarbon contamination of soil and groundwater have been detected on one of the properties on the other side of Moffett Boulevard which had been used by a fuel dispensing facility. Investigation and remediation efforts at this property are under oversight of the Santa Clara Valley Water District and are separate from those being conducted at or contemplated for the subject Site and/or any other property.

41. Union Bank installed MW-16 on the former InnerConn site in 1994. The Bank installed a total of 16 monitoring wells and two extraction wells (extraction well EX-1 is the most recent well) at 327 Moffett Boulevard, 333 (341) Moffett Boulevard and on the far side of Moffett Boulevard; and periodically collects groundwater samples from all wells for VOC chemical analysis.
42. In the latter part of 1992 the Board determined that Engelhard had been the last industrial occupant of the subject Site and requested a proposal from Engelhard to make a Site investigation. Engelhard responded and consequently made an initial soil and shallow groundwater investigation and submitted a report to the Board in December 1993. The Board found the investigation and report to be inadequate.
43. Engelhard was required by the Board (October 24, 1994 letter) to submit a proposal by no later than December 9, 1994, to conduct additional Site work in each of four described areas and submit a report. Engelhard requested and received three extensions for the submittal, and eventually submitted a report which was received February 1, 1995. Following review of the report, the Board advised Engelhard (letter dated February 7, 1995) that the report was unacceptable because it did not address any of the concerns expressed in the Board's October 24, 1994 letter.
44. The Board required Engelhard (March 20, 1995 letter, under California Water Code Section 13267) to submit a proposal for additional Site work, and Engelhard submitted a report, dated May 1, 1995, which was inadequate.
45. Engelhard, in 1996, submitted a new workplan to be implemented (if acceptable to the Board) by Park Environmental. Engelhard and Park proposed making a supplemental investigation and submitting a report, but requested that Engelhard be released from any obligation to respond specifically to the Board's earlier (October 24, 1994) concerns. The Board concurred, and Engelhard installed seven monitoring wells and collected initial groundwater samples for VOC analysis. Only one sampling event has been conducted for these wells. All wells were installed at or near previous 1993 test locations by Engelhard's other consultant (Environ).
46. Engelhard installed and sampled an additional boring/monitoring well along Moffett Boulevard in 1997. This well found a higher than anticipated TCE concentration in the shallow groundwater (450/440 ug/L), along with lesser concentrations of other VOCs.

Close to this new monitoring well in the upgradient direction are two earlier soil borings which found TCE concentrations at 240 and 220 ug/Kg at several feet below ground surface. The high TCE concentration in groundwater is associated with a nearby on-site source indicated by the high TCE concentrations in soil, rather than a distant upgradient source.

47. The spatial distributions of TCE and PCE as discerned from analyses of soil and groundwater samples, with a number of concentrations in the Site interior being higher than those in the upgradient direction, indicate on-site source areas.
48. The Board, after reviewing and evaluating all of Engelhard's submittals and other technical data, finds that the results of sample analyses indicate contamination has resulted from on-site activities and that Engelhard Corporation and other former Site occupants did contribute to Site groundwater contamination, and that in-migration of groundwater from the upgradient former InnerConn site also may have contributed to Site contamination.

INTERIM REMEDIAL MEASURES

49. On the former InnerConn site at 327 Moffett Boulevard (the adjacent upgradient property) Union Bank of California (UBOC) has installed and operates two groundwater extraction wells, one of which (well LF-2) is located very close to the common property boundary with the subject Site. This is the initial extraction well and has been remediating 327 Moffett Boulevard for several years by removing contaminated groundwater and discharging it to the sanitary sewer as allowed by the City of Mountain View. The area of capture for this well, as calculated by UBOC, extends onto the subject Site.

A second extraction well (EX-1) was installed recently near a suspected former source area in the interior of the property at 327 Moffett Boulevard. These two extraction wells by themselves are not considered adequate for remediating all known and/or suspected Moffett Boulevard areas of VOC groundwater contamination.

50. Interim remedial measures have not yet been implemented (or proposed) for the subject Site.

BASIN PLAN

51. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in 23 CCR 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

52. The potential beneficial uses of the groundwater underlying and adjacent to the property include:
- a. Industrial process water supply
 - b. Industrial service supply
 - c. Municipal and domestic supply
 - d. Agricultural supply

In this general area the deeper regional aquifer below a depth of about 200 feet is a major water-supply source.

OTHER BOARD POLICIES

53. Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from Site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible. Board Resolution No. 89-39, "Sources of Drinking Water", defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels.

STATE WATER BOARD POLICIES

54. State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California", applies to a discharge of treated extracted groundwater, should this prove to be necessary at the subject Site, and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives.

State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup of Discharges Under Water Code Section 13304", applies to any potential discharge at this Site. This Order and its requirements are consistent with provisions of Resolution 92-49, as amended.

PRELIMINARY CLEANUP GOALS

55. The Dischargers will need to make assumptions about cleanup standards for soil and groundwater to determine the necessary extent of remedial investigation, interim remedial actions, and the draft cleanup plan. Pending the establishment of Site-specific cleanup standards, the following preliminary cleanup goals should be used:
- a. Groundwater: Cleanup to background or concentrations less than maximum contaminant levels (MCLs) must be considered. However, groundwater cleanup

concentrations must be no greater than applicable water quality objectives (e.g. maximum contaminant levels, or MCLs) or, in the absence of a chemical-specific objective, risk-based levels (e.g. drinking water equivalent levels).

- b. Soil: Cleanup goal to be no more than one part per million (ppm) for total VOCs, or goals for identified contaminants to be based upon acceptable Preliminary Remediation Goals proposed by the Dischargers.

BASIS FOR 13304 ORDER

- 56. The Dischargers have discharged waste, or have caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.

COST RECOVERY

- 57. Pursuant to California Water Code Section 13304, the Dischargers are hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.

CEQA

- 58. This action is an Order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.

NOTIFICATION

- 59. The Board has notified the Dischargers and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

PUBLIC HEARING

- 60. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the Dischargers (or their agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

A. **PROHIBITIONS**

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

B. **TASKS**

1. **REMEDIAL INVESTIGATION (SITE CHARACTERIZATION) AND SOURCE IDENTIFICATION WORKPLAN**

COMPLIANCE DATE: January 1, 1999

Submit a technical report acceptable to the Executive Officer which is a workplan for an investigation to complete a determination of the lateral and vertical extent of soil and groundwater contamination, including possible off-site extensions, and to identify all former contamination sources on the Site, such as chemical storage areas, sumps, underground tanks, and related facilities and appurtenances. The investigation should be comprehensive enough to describe potential off-site migration of contaminated groundwater and may include, at the Dischargers' discretion, an evaluation of the significance of any perceived or potential in-migration of contaminated groundwater from upgradient source(s). The workplan should specify investigation methods and a proposed time schedule for completing subtasks and the overall Task.

2. **COMPLETION OF REMEDIAL INVESTIGATION (SITE CHARACTERIZATION) AND SOURCE IDENTIFICATION**

COMPLIANCE DATE: March 1, 1999

Submit a technical report acceptable to the Executive Officer documenting completion of all subtasks and the overall Task identified in the Task 1 workplan. The technical report should define the extent of contamination, from the maximum amount(s) detected down to concentrations at or below typical cleanup standards for soil and groundwater, and should identify confirmed and possible former (and current, if appropriate) sources of contamination.

3. **INTERIM REMEDIAL ACTION WORKPLAN**

COMPLIANCE DATE: June 1, 1999

Submit a workplan acceptable to the Executive Officer to evaluate interim remedial action alternatives and to recommend one or more alternative(s) for implementation. If the on-site contamination plume or plumes was (were) identified as extending off-site, the recommended alternative(s) will address remediation of both the on-site and off-site plumes. The workplan should specify a proposed time schedule. Work may be phased to allow the remediation to proceed efficiently. If groundwater extraction is selected as an interim remedial action, the workplan will include a proposal to evaluate this action with respect to Board Resolution No. 88-160, "Regional Board Position on the Disposal of Extracted Groundwater from Groundwater Cleanup Projects", and comply with the provisions of this resolution.

4. **COMPLETION OF INTERIM REMEDIAL ACTIONS**

COMPLIANCE DATE: September 1, 1999

Submit a technical report acceptable to the Executive Officer documenting completion of necessary subtasks identified in the Task 3 workplan. For on-going actions such as soil vapor extraction or groundwater extraction, the report should document start-up as opposed to completion.

5. **PROPOSED FINAL REMEDIAL ACTIONS AND CLEANUP STANDARDS**

COMPLIANCE DATE: January 1, 2000

Submit a technical report acceptable to the Executive Officer containing:

- a. Results of the remedial investigation
- b. Evaluation of the installed interim remedial actions
- c. Feasibility study evaluating alternative final remedial actions
- d. Risk assessment for current and post-cleanup exposures
- e. Recommended final remedial actions and cleanup standards
- f. Implementation tasks and time schedule

Item c should include projections of cost, effectiveness, benefits, and impact on public health, welfare, and the environment, for each identified alternative action.

Items a through c should be consistent with the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300), CERCLA guidance documents with respect to remedial investigations and feasibility studies, Health and Safety Code Section 25356.1(c), and State Board Resolution No.

92-49 as amended ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304").

Items a through e should consider the preliminary cleanup goals for soil and groundwater identified in Finding 64.

6. **Delayed Compliance:** If the Discharger(s) is (are) delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the Discharger(s) shall promptly notify the Executive Officer and the Board may consider revision to this Order.

C. **PROVISIONS**

1. **No Nuisance:** The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).
2. **Good Operation and Maintenance (O&M):** The Discharger(s) shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.
3. **Cost Recovery:** The Discharger(s) shall be liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the Site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any dispute raised by the Discharger(s) over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.
4. **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the Discharger(s) shall permit the Board or its authorized representatives:
 - a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the terms and conditions of this Order.
 - c. Inspection of any monitoring or remediation facilities installed in response to this Order.

- d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Discharger(s).
5. **Self-Monitoring Program:** The Discharger(s) shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.
6. **Contractor/Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.
7. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).
8. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:
 - a. City of Mountain View
 - b. County of Santa Clara, Health Department
 - c. Santa Clara Valley Water District
9. **Reporting of Changed Owner or Operator:** The Discharger(s) shall file a technical report on any changes in Site occupancy or ownership associated with the property and facility described in this Order.
10. **Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in or on any waters of the State, or discharged and deposited where it is, or probably will be discharged in or on any waters of the State, the Discharger(s) shall report such discharge to the Regional Board by calling (510) 286-1255 during regular office hours (Monday through Friday, 8:00 to 5:00).

A written report shall be filed with the Board within five (5) working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.

11. **Periodic SCR Review:** The Board will review this Order periodically and may revise it when necessary. The Discharger may request revisions and upon review the Executive Officer may recommend that the Board revise these requirements.
12. **Secondarily-Responsible Discharger:** Within 60 days after being notified by the Executive Officer that other named dischargers have failed to comply with this order, Mountain View-Los Altos Union High School District [and Alvin Lawrence Silver and Ruth Eleanor Silver] as current and former property owner(s) shall then be responsible.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 16, 1998.

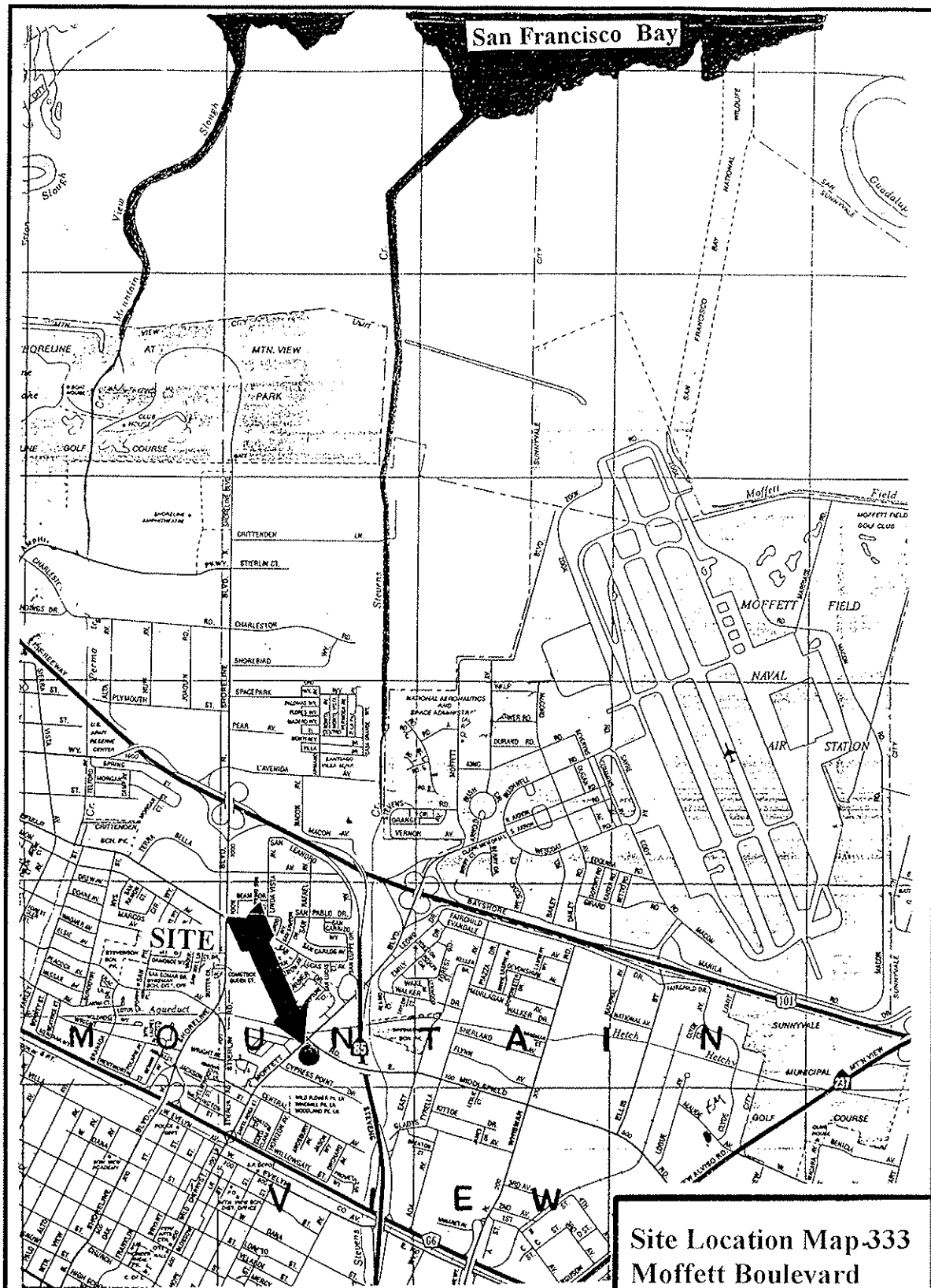


Loretta K. Barsamian
Executive Officer

FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTION 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY.

Attachments:

Site Map
Site Vicinity Map
Self-Monitoring Program



NORTH

CYPRESS POINT DRIVE

400 Moffett Blvd.

390 Moffett Blvd.

340 Moffett Blvd.

MOFFETT BOULEVARD

333
Moffett
Blvd.

PARKING LOT

327 Moffett Blvd.

723-730 Central Ave

APPROXIMATE PROPERTY LINE

CENTRAL AVENUE

Site Map
333 Moffett Boulevard

0 60' 120'

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

MILLIS CORPORATION, MILLIS HYBRID MICROCIRCUITS CORPORATION, ECA CORPORATION, MILLIS WEST CORPORATION, ENGELHARD PRECISION MICROWAVE CIRCUITS WEST CORPORATION, ENGELHARD CORPORATION, SILICON MATERIAL INC., HY-PAC INC., GARD-MORE CIRCUITS, MOUNTAIN VIEW-LOS ALTOS UNION HIGH SCHOOL DISTRICT, ALVIN LAWRENCE SILVER AND RUTH ELEANORE SILVER, RICHARD B. WELLS AND GINGER WELLS, JEROME GILMORE AND GEORGIA GILMORE, AND A PARTNERSHIP OF PAUL ZEBB, CHARLES BEDOLLA, HENRY YAMATE, AND TAD SEKIGAHAMA

FOR THE PROPERTY LOCATED AT:
333 (341) MOFFETT BOULEVARD
MOUNTAIN VIEW, SANTA CLARA COUNTY

1. **Authority and purpose:** The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. (site cleanup requirements).
2. **Monitoring:** The Discharger shall measure groundwater elevations and collect and analyze representative samples of groundwater according to the following schedule:

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
MW 51s-P	Q	VOCs, pH	MW 54-P	Q	VOCs, pH
51d-P	Q	VOCs, pH	55-P	Q	VOCs, pH
52-P	Q	VOCs, pH	56-P	Q	VOCs, pH
53-P	Q	VOCs, pH	57-P	Q	VOCs, pH

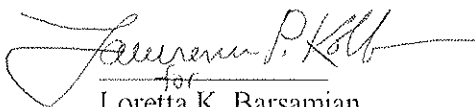
Key: Q=quarterly. VOCs=volatile organic compounds, by EPA Method 8010 or equivalent, three quarters, and EPA Method 8240, fourth calendar quarter only. pH=standard pH.

The Discharger shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the same constituents as shown in the above table. The Executive Officer may propose changes in the above table. The Discharger may propose changes in the above table; any proposed changes are subject to Executive Officer approval.

3. **Quarterly Monitoring Reports:** The Discharger shall submit quarterly monitoring reports to the Board no later than 30 days following the end of the quarter (e.g. report for first quarter of the year due April 30). The first quarterly monitoring report shall be due on . The report shall include:
 - a. Transmittal Letter: The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the Discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.
 - b. Groundwater Elevations: Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for each monitored water-bearing zone. Historical groundwater elevations shall be included in the fourth quarterly report each year.
 - c. Groundwater Analyses: Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included in the fourth quarterly report each year. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).
 - d. Groundwater Extraction: If applicable, the report shall include groundwater extraction results in tabular form, for each extraction well and for the site as a whole, expressed in gallons per minute and total groundwater volume for the quarter. The report shall also include contaminant removal results, from groundwater extraction wells and from other remediation systems (e.g. soil vapor extraction), expressed in units of chemical mass per day and mass for the quarter. Historical mass removal results shall be included in the fourth quarterly report each year.
 - e. Status Report: The quarterly report shall describe relevant work completed during the reporting period (e.g. site investigation, interim remedial measures) and work planned for the following quarter.

4. **Violation Reports:** If the Discharger violates requirements in Site Cleanup Requirements, then the Discharger shall notify the Board office by telephone as soon as practicable once the Discharger has knowledge of the violation. Board staff may, depending on violation severity, require the Discharger to submit a separate technical report on the violation within five working days of telephone notification.
5. **Other Reports:** The Discharger shall notify the Board in writing prior to any site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.
6. **Record Keeping:** The Discharger or his/her agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.
7. **SMP Revisions:** Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the Discharger. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

I, Loretta K. Barsamian, Executive Officer, hereby certify that this Self-Monitoring Program was adopted by the Board on September 16, 1998.


for
Loretta K. Barsamian
Executive Officer